

REMARKS

The Office Action mailed January 9, 2008, has been received and reviewed. Claims 1, 3 through 9, and 11 through 23 are currently pending in the application. Claims 1, 3 through 9, and 11 through 23 stand rejected. Applicant has amended claims 1 and 16, and respectfully request reconsideration of the application as amended herein.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Publication No. 2004/0025791 to Chen et al. in view of U.S. Patent No. 5,716,534 to Tsuchiya et al.

Claims 1, 3-9, and 11-23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Publication No. 2004/0025791 to Chen et al. ("Chen") in view of U.S. Patent No. 5,716,534 to Tsuchiya et al. ("Tsuchiya"). Applicant respectfully traverses this rejection, as hereinafter set forth.

To establish a *prima facie* case of obviousness the prior art reference (or references when combined) **must teach or suggest all the claim limitations**. *In re Royka*, 490 F.2d 981, 985 (CCPA 1974); *see also* MPEP § 2143.03. Additionally, the Examiner must determine whether there is "an apparent reason to combine the known elements in the fashion claimed by the patent at issue." *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1740-1741, 167 L.Ed.2d 705, 75 USLW 4289, 82 U.S.P.Q.2d 1385 (2007). Further, rejections on obviousness grounds "cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Id* at 1741, quoting *In re Kahn*, 441, F.3d 977, 988 (Fed. Cir. 2006). Finally, to establish a *prima facie* case of obviousness there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). Furthermore, the reason that would have prompted the combination and the reasonable expectation of success must be found in the prior art, common knowledge, or the nature of the problem itself, and not based on the Applicant's disclosure. *DyStar Textilfarben GmbH & Co. Deutschland KG v. C. H. Patrick Co.*, 464 F.3d 1356, 1367 (Fed. Cir. 2006); MPEP § 2144. Underlying the obvious determination is the fact that statutorily prohibited hindsight cannot be used. *KSR*, 127 S.Ct. at 1742; *DyStar*, 464 F.3d at 1367.

The 35 U.S.C. § 103(a) obviousness rejections of claims 1, 3-9, and 11-23 are improper because the elements for a prima facie case of obviousness are not met. Specifically, the rejection fails to meet the criterion that the prior art references must teach or suggest all the claims limitations.

Independent Claims 1 and 16

Regarding independent claims 1 and 16 and claims 3-9, 11, 13-15, 17, 23 depending therefrom, Applicant has amended independent claims 1 and 16 to include claim limitations not taught or suggested in the cited references.

Applicant's independent claim 1, as presently amended, recites:

1. A plasma reactor, comprising:
first, second and third power generators wherein the first power generator is coupled to an upper electrode and ***the second and third power generators are coupled to a lower electrode*** for supporting a wafer thereon, the first, second and third power generators being frequency-based power generators; ***and***
a controller ***configured to*** individually selectively ***activate the*** first, ***second and third power generators to a plurality of activation configurations*** during a plurality of phases of a duty cycle of a process, ***wherein at least one of the plurality of activation configurations includes differently activating the second and third power generators to generate at least two different active states on the lower electrode.*** (Emphasis added.)

Applicant's independent claim 16, as presently amended, recites:

16. A plasma reactor, comprising:
a vacuum chamber including upper and lower electrodes therein;
first, second and third power generators wherein the first power generator is coupled to an upper electrode and ***the second and third power generators are coupled to a lower electrode*** for supporting a wafer thereon, the first, second and third power generators being frequency-based power generators; ***and***
a controller ***configured to*** individually selectively ***activate the*** first, ***second and third power generators to a plurality of activation configurations*** during a plurality of phases of a duty cycle of a process, ***wherein at least one of the plurality of activation configurations includes differently activating the second and third power generators to generate at least two different active states on the lower electrode.*** (Emphasis added.)

While the Office Action attempts to combine Chen and Tsuchiya, these references still do not teach or suggest all of the claim limitations of Applicant's invention as previously claimed and as now presently amended. Specifically, neither of these references teaches or suggests generating *different active states using a plurality of power generators on the same electrode.* Specifically, Applicant's invention as presently claimed recites, in part, "*at least one* of the plurality of activation configurations *includes differently activating* the second and third power generators *to generate at least two different active states on the lower electrode.*"

Furthermore, the Office Action attempts to read functionality into the Tsuchiya controller that is neither taught nor suggested.

Specifically, the Office Action alleges:

... Chen teach second and third power generator 150, 154 connected to lower electrode 120 and where a controller 110 enables supply a modulated RF signal to the lower electrode Further *Tsuchiya et al teach individual selective activation of RF generators 29, 18 coupled to the upper and lower electrodes respectively* It would be obvious to configure the controller of Tsuchiya et al for differently activating the second and third power generators 150, 154 connected to power electrode 120 in Chen et al's apparatus (Office Action, pp. 2-3; emphasis added).

Applicant respectfully asserts while Tsuchiya may teach a controller capable of individually controlling *opposing* single electrodes, namely *a* generator on *an* upper electrode and *a* generator on *a* lower electrode, neither Tsuchiya nor Chen teach "*at least one* of the plurality of activation configurations *includes differently activating* the second and third power generators *to generate at least two different active states on the lower electrode*" as claimed by Applicant. Furthermore, to infer such sophistication into the controller of Tsuchiya is clearly improper, especially since Tsuchiya is clear regarding the unsophisticated nature, namely that "the *CPU 20 controls* the RF *power supplies* 29 and 18 *such that they maintain their initial preset values.*" (Tsuchiya, col. 12, lines 63-65; emphasis added).

Furthermore, the proposed combination in the Office Action does not result in Applicant's invention as presently claimed. Specifically, the Office Action relies upon the structure of the "two generators coupled to the lower electrode" of Chen to be controlled by the

controller of Tsuchiya configured with its disclosed functionality of “maintain[ing] their initial preset values.” (Tsuchiya, col. 12, lines 63-65). Furthermore, the controller functionality of Tsuchiya is clearly limited to controlling *opposing* electrodes with any disclosed functionality, at most, being clearly limited to “*maintain their initial preset values.*” (Tsuchiya, col. 12, lines 63-65; emphasis added).

Specifically, Applicant’s invention as presently claimed recites, in part, “*at least one* of the plurality of activation configurations *includes differently activating* the second and third power generators *to generate at least two different active states on the lower electrode.*” Therefore, since neither Chen nor Tsuchiya teach or suggest Applicant’s claimed invention including the element of “*at least one* of the plurality of activation configurations *includes differently activating* the second and third power generators *to generate at least two different active states on the lower electrode*”, these references, either individually or in any proper combination, cannot render obvious, under 35 U.S.C. §103, Applicant’s invention as presently claimed in amended independent claims 1 and 16. Accordingly, Applicant respectfully requests the rejections of presently amended independent claims 1 and 16 be withdrawn.

Dependent Claims 3-9 and 11-23

The nonobviousness of independent claim 1 precludes a rejection of claims 3-9, 11 and 13-15 which depend therefrom because a dependent claim is obvious only if the independent claim from which it depends is obvious. *See In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), *see also* MPEP § 2143.03. Therefore, Applicant requests that the Examiner withdraw the 35 U.S.C. § 103(a) obviousness rejection to independent claim 1 and claims 3-9, 11 and 13-15 which depend therefrom.

The nonobviousness of independent claim 16 precludes a rejection of claims 17-23 which depend therefrom because a dependent claim is obvious only if the independent claim from which it depends is obvious. *See In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), *see also* MPEP § 2143.03. Therefore, Applicant requests that the Examiner withdraw the 35 U.S.C. § 103(a) obviousness rejection to independent claim 16 and claims 17-23 which depend therefrom.

CONCLUSION

Claims 1, 3-9 and 11-23 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, the Examiner is respectfully invited to contact Applicant's undersigned attorney.

Respectfully submitted,



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